

Also, the present invention provides a floppy disk as described above, wherein a Co-Cr alloy with a Cr concentration within the range of 10 - 30 atom % is used for the magnetic layer.

Further, the present invention provides a floppy disk as described above, wherein a Cr alloy with a Cr concentration within the range of 77 - 100 atom % is used as the primer layer.

Also, the present invention provides a floppy disk, which comprises a flattening layer with a thickness of 0.1 - 5  $\mu\text{m}$ , a seed layer, a nonmagnetic primer layer containing a Cr alloy with a Cr concentration of 77 - 100 atom %, a magnetic layer containing a Co-Cr alloy with a Cr concentration of 10 - 30 atom %, a protective layer, and a lubricating layer, all of said layers being coated on at least one of the surfaces of a flexible support member with a thickness of 30 - 100  $\mu\text{m}$ , whereby the thickness of the seed layer is 5 - 100 nm, and the linear expansion coefficient ( $E_{SE}$ ) of the seed layer and the linear expansion coefficient ( $E_{UL}$ ) of the nonmagnetic primer layer satisfy the relation:  $|E_{SE} - E_{UL}|/E_{UL} < 0.3$ , and the tensile strength ( $S_{SE}$ ) of the seed layer and the tensile strength ( $S_{UL}$ ) of the nonmagnetic primer layer satisfy the relation:  $S_{SE}/S_{UL} > 1$ .

✓ Please substitute the following for the paragraph at page 5, line 16 to page 6, line 3:

When a hard disk made of aluminum, glass, etc. is used as a support member, it is possible to attain flatness closer to mirror surface by polishing. In case of a floppy disk, however, a flexible support member is used as the support member, and it is very difficult to improve the flatness by polishing. In this respect, by providing a polymeric flattening layer on the flexible support member, surface properties similar to a hard disk support member can be attained. On the flattening layer, a nonmagnetic primer layer and a magnetic layer are formed by sputtering.

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In order to increase the magnetostatic property and electromagnetic transfer characteristics of the magnetic layer, it is necessary to heat the support member at a high temperature of 100°C - 300°C. Alternatively, the temperature of the support member is effectively increased when bias voltage application, RF sputtering method, etc. are used.

✓ Please substitute the paragraph at page 6, lines 11-27, with the following paragraph:

A<sup>3</sup>

In a hard disk, the support member is made of a hard material, and metal, ceramics, glass, etc. are typically used as the material. In this respect, the difference of expansion coefficient is small between the primer layer and the support member, and there is less possibility that cracking occurs during heating and cooling processes due to the difference in thermal expansion. In a magnetic recording medium using a flexible support member as the substrate, the flexible support member and the flattening layer are made of macromolecular compositions, and the nonmagnetic primer layer and the magnetic layer are made of a metal material. For this reason, thermal expansion or shrinking differs between these two layers by about one digit. The material of the nonmagnetic primer layer cannot endure the deformation of the support member when cooled down, and this may result in cracking on the magnetic recording medium.

✓ Please substitute the following for the paragraph at page 7, lines 7-18:

A<sup>4</sup>

It is proposed to use the following material as the material of the seed layer and the primer layer, i.e. a material, in which the linear expansion coefficient ( $E_{SE}$ ) of the metal seed layer and the linear expansion coefficient ( $E_{UL}$ ) of the nonmagnetic primer layer satisfy the relation:  $|E_{SE} - E_{UL}|/E_{UL} < 0.3$ , and the tensile strength ( $S_{SE}$ ) of the metal seed layer and the tensile strength ( $S_{UL}$ ) of the nonmagnetic primer layer satisfy the relation:  $S_{SE}/S_{UL} > 1$ . In this

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manner, it is possible to cope with the force, which is generated due to the difference of the linear expansion coefficients between the primer layer and the magnetic layer in the cooling process, and cracking can be prevented on a higher level.

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✓ Please substitute the following four paragraphs for those shown at page 7, line 25 to page 9, line 1:

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For the purpose of preventing cracking during the above process, such materials are used that the linear expansion coefficient ( $E_{SE}$ ) of the metal seed layer and the linear expansion coefficient ( $E_{UL}$ ) of the nonmagnetic primer layer satisfy the relation:  $|E_{SE} - E_{UL}|/E_{UL} < 0.3$ , and the tensile strength ( $S_{SE}$ ) of the metal seed layer and the tensile strength ( $S_{UL}$ ) of the nonmagnetic primer layer satisfy the relation:  $S_{SE}/S_{UL} > 1$ . As a result, it is possible to prevent cracking during the preparation of the medium and to provide a floppy disk with high recording density.

The following description relates to the materials which are preferably used in the present invention.

As the support member of the magnetic recording medium of the present invention, polyethylene terephthalate, polyethylene naphthalate, polyimide, polyamide, polyamideimide, polybenzoxazole, etc. may be used. The Young's modulus of the support member of the magnetic recording medium of the present invention is preferably  $200 - 1600 \text{ kg/mm}^2$ , or more preferably  $300 - 800 \text{ kg/mm}^2$ . The thickness of the support member is preferably  $20 - 150 \text{ }\mu\text{m}$ , or more preferably  $30 - 80 \text{ }\mu\text{m}$ .

To improve the flatness of the surface of the support member, a flattening layer is provided on the support member. For the flattening layer, a heat-resistant polymer may be